Making Local Regulations "LID-Friendly"

A Case Study of One California Community

California NPS Conference

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LARRY WALKER ASSOCIATES

Overview

- LID & Local Codes and Ordinances
  - Principles of LID
  - Barriers and Opportunities
  - Highlights from the case study community

Making Codes “LID-Friendly”

- Local regulations are often identified as a significant impediment
- regulations prohibit or discourage by requiring special permits or variances
- more commonly, ordinances are silent, leaving planning commissions and developers to rely on the “conventional” approaches
- Simple modifications to local codes can encourage application of LID

Principles of LID

- Conserve natural resources that provide valuable natural functions assoc. w/ controlling and filtering stormwater
- Minimize & disconnect impervious surfaces
- Direct runoff to natural and landscaped area conducive to infiltration
- Use distributed small-scale controls to mimic the site's pre-project hydrology
- Stormwater education leads to pollution prevention

Source: Mull, K., 2005

Incorporating LID

- NPDES MS4 Permit Requirements
- Incorporate as part of stormwater mgt ordinance
  - EIA, hydromodification, runoff reduction
- Update BMP lists
- Stormwater credits
- Code and ordinance changes
- Capital Improvement Projects

Codes & Regulations

Incorporating LID may require a review of more than 30 codes, ordinances and policy documents, including:

- Development Plans Review Policy Manual
- Citizen's Guide to Zoning
- Code of Ordinances
- Comprehensive Manual of Development Policies
- Department of Public Works Design Manual
- Development Management Policy Manual
- Forest Conservation Technical Manual
- Local Open Space Manual
- Manual of Landscaping Standards
- Master Plan
- Stormwater Management Regulations
- Zoning Regulations

Conserve Natural Resources

Barriers

- Setbacks

Opportunities

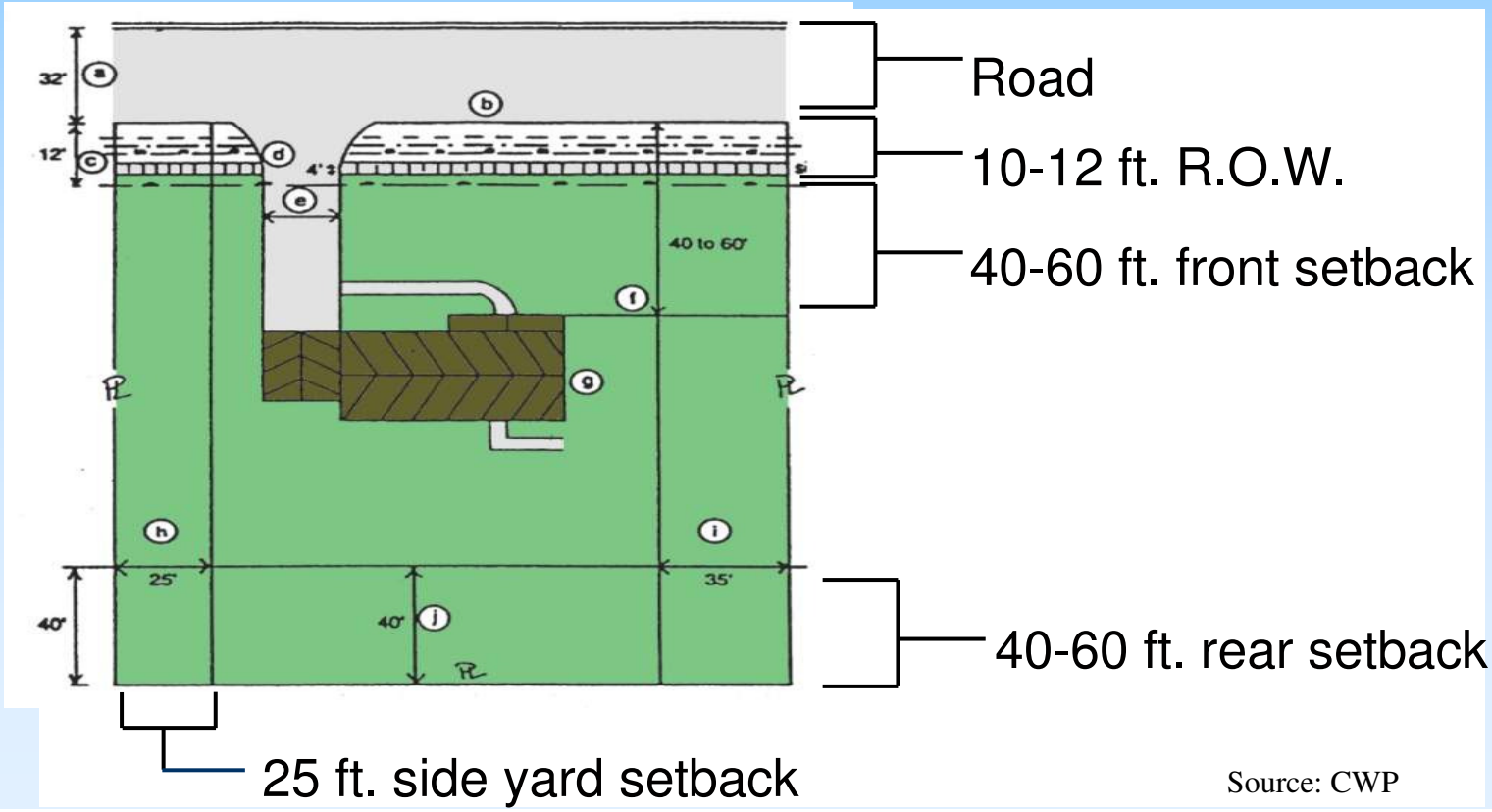
- Landscaping

Source: Russian River Watershed Council

Conserve Natural Resources:

Setbacks

Q: Are setback distances minimized to increase flexibility, increase preservation of open space and minimize clearing and grading?



Source: CWP

Conserve Natural Resources:

Setbacks

A: Natural resource conservation not specified as a goal, but setbacks are minimal:

Single Residential (4 du/ac)

- Front: 25 ft
- Side: 5 ft on one, 10 on other
- Rear: 15 ft

Conserve Natural Resources:

Landscaping

Q1: Do minimum landscaping requirements exist?

Q2: Are bioretention areas, filter strips, and swales allowed to count towards fulfillment of landscaping requirements?

Source: City of Portland

Conserve Natural Resources:

Landscaping

A1: Yes.

Minimum Landscaped Area

Land Use	Minimum Landscape Area The factor resulting in the larger landscaped area shall be used.	
	As a % of Lot Area	Area in Sq. Ft.
Residential		
Single-Family	Front and street side setbacks	900
Multi-Family	35%	N/A
Nonresidential		
Industrial/Warehouse	15%	1,000
Insitutional	15%	500

A2: No mention of stormwater in landscaping standards. Stormwater guidance: “Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.”

In addition to required landscaping areas, landscaping may be provided in lieu of 10% of the total number of parking spaces required, provided the landscaping is arranged so that parking may be installed at a later date if a demand arises

Minimize & Disconnect IC

Barriers

- Street Width
- Parking Lot Design

Opportunities

- Traffic Calming

Source: CA WALUP

Minimize & Disconnect IC:

Street Width

Q1: Curb and gutter required for all street classes?

Q2: Are narrow residential street widths allowed (18-22 ft)?

Minimize & Disconnect IC:

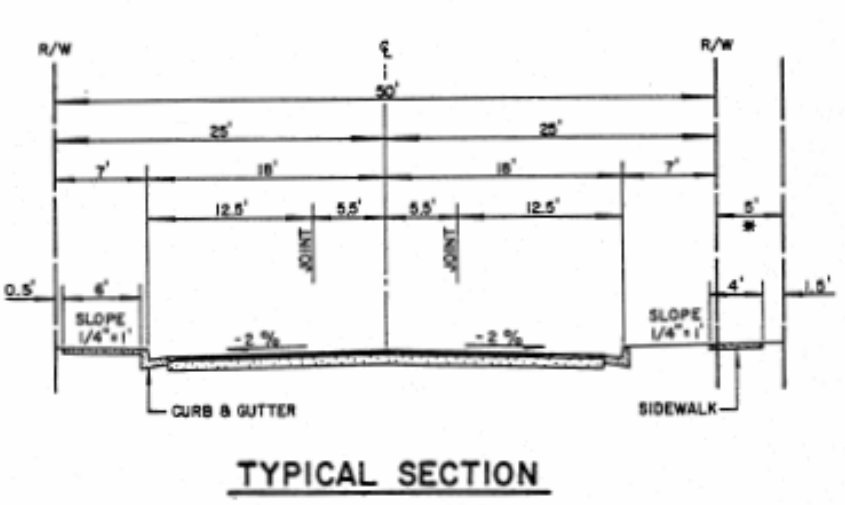
Street Width

A1: Public Works standards: "Curb is normally required on new development"; street standards all depict curb and gutter

Stormwater guidance: Increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.

A2: Room for improvement

- local street w/less than 500ADT minimum 25' road width



TYPICAL SECTION

Minimize & Disconnect IC:

Parking Lot Design

Q1: Minimum space requirements?

Q2: Curbing requirements?

Q3: Shared Parking allowed?

Source: Santa Clara

Source: City of Portland

Minimize & Disconnect IC:

Parking Lot Design

A1: Yes. Requirements are pretty typical

Shopping centers (projects over 200,000 s.f. of floor area)	▪ 1 for each 200 s.f. of GLA up to 100,000 sf; and ▪ 1 for each 250 s.f. of GLA for square footage above 100,000 s.f.

A2: Yes. This is a barrier: "Areas containing plant materials shall be bordered by a concrete curb at least six inches high and six inches wide. Alternative barrier designs may be approved by the Director."

A3: Yes. "Where two or more adjacent nonresidential uses have distinct and differing peak parking usage periods, (e.g. a theater and a bank), a reduction in the required number of parking spaces may be approved by the Commission based on the findings and recommendations of a parking study."

Minimize & Disconnect IC:

Traffic Calming

Q: Do traffic calming procedures and guidance reference integration w/ LID techniques?

Source: City of Portland

Minimize & Disconnect IC:

Traffic Calming

A: Policies do not appear to address traffic calming measures.

New street standards may be opportunity to showcase and encourage integration of stormwater mgt and traffic calming measures

Direct Runoff

Barriers

- Rooftops

Source: CA WALUP

Opportunities

Integration with other requirements (landscaping and tree conservation)

Direct Runoff:

Rooftop Runoff

Q1: Can rooftop runoff be discharged to lawn areas and buffers with use of a level spreader or other velocity reduction mechanism?

Q2: Cisterns, rain barrels and rain gardens allowed?

Source: EOA

Direct Runoff:

Rooftop Runoff

A1: Residential and commercial sites must be designed to contain and infiltrate roof runoff, or direct roof runoff to vegetative swales or buffer areas.

A2: Stormwater guidance actively encourages the use of raingardens

Use Small Scale Controls

Opportunities

- Stormwater ordinance, manual, credits

Section 5
Treatment Control BMPs

5.1 Introduction

This section describes treatment control Best Management Practices (BMPs) to be considered for incorporation into newly developed public and private infrastructure, as well as retrofit into existing facilities to meet stormwater management objectives. BMP fact sheets are divided into two groups: public domain BMPs and manufactured (proprietary) BMPs. In some cases, the same BMP may exist in each group, for example, media filtration. However, treatment BMPs are typically very different between the two groups.

Brand names of manufactured BMPs are not stated. Descriptions of manufactured BMPs in this document should not be inferred as endorsement by the authors.

5.2 Treatment Control BMPs

Public domain and manufactured BMP controls are listed in Table 5-1.

Table 5-1 Treatment Control BMPs

Public Domain	Manufactured (Proprietary)
Infiltration	**Infiltration**
TC-10 Infiltration Trench	
TC-11 Infiltration Basin	
TC-12 Retention/Irrigation	
Detention and Settling	**Detention and Settling**
TC-20 Wet Pond	MP-20 Wetland
TC-21 Constructed Wetland	
TC-22 Extended Detention Basin	
Biofiltration	**Biofiltration**
TC-30 Vegetated Swale	
TC-31 Vegetated Buffer Strip	
TC-32 Bioretention	
Filtration	**Filtration**
TC-40 Media Filter	MP-40 Media Filter
Flow Through Separation	**Flow Through Separation**
TC-50 Water Quality Inlet	MP-50 Wet Vault

CASQA BMP Handbooks

Use Small Scale Controls:

Stormwater Ordinance, Credits, etc.

Q: Common LID practices called out in local stormwater manual and/or ordinance? (i.e., are bioretention areas, porous pavement, green roofs, etc. available options?)

Source: LID Technical Guidance Manual for Puget Sound

Use Small Scale Controls:

Stormwater Ordinance, Credits, etc.

A: Yes, several Low Impact Development practices are called out within stormwater guidance

Design Basis of Treatment Control BMPs	
Treatment Control BMP	**Design Basis**
Vegetated Buffer Strips (TC-31)	Flow Based
Vegetated Swale (TC-30)	
Multiple Systems (TC-60)	
Manufactured/Proprietary Devices (MP series)	
Bioretention (TC-32)	Volume Based
Wet Pond (TC-20)	
Constructed Wetland (TC-21)	
Extended Detention Basin (TC-22)	
Water Quality Inlet (TC-50)	
Retention/Irrigation (TC-12)	
Infiltration Basin (TC-11)	
Infiltration Trench (TC-10)	
Media Filter (TC-40)	
Manufactured/Proprietary Devices (MP series)	

Source BMPs include pervious pavement & roof runoff controls

Conclusion

- Stormwater guidance excels at encouraging the principles of low impact development
- Landscaping standards also do a lot to promote principles of LID
- Codes, ordinances and policies residing in other Departments may need to be updated in order to realize full benefit of innovative stormwater guidance
- In some cases codes are “silent” on LID which can also be a barrier